(Rev. 8/14/06)
DM# 51699

Standard Request for Qualifications

Design and Categorical Exclusion Environmental Services

for

Project No. HPP-LC05(29)
200 East Minor Arterial, Logan City

September 20, 2006

UTAH DEPARTMENT OF TRANSPORTATION
Standard Request for Qualifications
Project No. HPP-LC05(29); 200 East Minor Arterial, Logan City

SUMMARY SHEET

1. Project Number: HPP-LC05(29)

2. Location: 200 East Minor Arterial, Logan City

3. ePM PIN No.: 5469

4. Requested Services: Design and Categorical Exclusion Environmental Services

5. Source(s) of Funding: Federal

6. UDOT Project Administrator:

   Alan M. Loiacono
   RFQ Contract Administrator
   Utah Department of Transportation
   Consultant Services
   Box 148490
   4501 South 2700 West
   Salt Lake City, Utah 84119-5998
   Telephone 801-965-4804
   aloiacono@utah.gov

7. Logan City Project Management:

   Bill Young
   City Engineer
   255 North Main
   Logan, Utah 84321
   Telephone 435-716-9160
   byoung@loganutah.org

8. UDOT Project Management

   Brad Humphreys
   Project Manager
   Utah Department of Transportation
   Region 1
   166 West Southwell Street
   Ogden, Utah 84404
   Telephone 801-620-1684
   bhumphreys@utah.gov

9. Advertisement Dates: Saturdays, September 23 & 30, 2006.

10. Statement of Qualifications (SOQ) Due Date: **Monday, October 16, 2006, 11:00 A.M.**

    Deliver eight (8) hard-copies and an electronic PDF file on a CD of the SOQ to the Utah Department of Transportation, Office of Consultant Services, 4th Floor NE Corner, 4501 South 2700 West, Salt Lake City, Utah 84119-5998 no later than 11:00 a.m. on **Monday, October 16, 2006**.

    SOQ's will not be accepted after the 11:00 a.m. deadline.

11. Type of Statement Required: In accordance with *Utah Department of Transportation Guidelines for Preparing Standard Statement of Qualifications*.

    The SOQ has a maximum page-limit of **ten (10)** pages.

12. UDOT Selection Team Meeting: Wednesday, October 25, 2006.

13. Oral Interviews Date: Selection may be from SOQ scores; however, should the Selection Team determine it is necessary, the interviews will be held on Wednesday, November 1, 2006.

14. Pre-negotiation Meeting Date: TBD

15. Negotiation Meeting Date: TBD

16. Notice to Proceed Date: TBD

17. Project Completion Date: June 2007

Consultant Selection Schedule

Date	Day	Action
9/23/06	Saturday	Advertisement of RFQ in newspapers
9/25/06	Monday	Posting of RFQ on UDOT Consultant Services Project Advertisement website
9/30/06	Saturday	2nd Advertisement of RFQ in newspapers
10/16/06	Monday	Statements of Qualifications are due at 11:00 a.m.
10/25/06	Wednesday	UDOT Selection Team Meeting
11/1/06	Wednesday	UDOT Consultant Selection Interviews
11/1/06	Wednesday	Consultant Selection

TABLE OF CONTENTS

ADVERTISEMENT

NOTICE OF CONSULTANT SERVICES

Logan City and the Utah Department of Transportation (UDOT) are seeking the services of a qualified Consultant to provide Design and Categorical Exclusion Environmental Services for Project Number HPP-LC05(29); 200 East Minor Arterial, Logan City in Cache County.

If you are interested in submitting a Statement of Qualifications, information on the Request for Qualifications and Guidelines for Preparing a Statement of Qualifications will be available Monday, September 25, 2006 and may be obtained from the Utah Department of Transportation Web site udot.utah.gov under "Inside UDOT > Internal Groups and Divisions > Project Development > Consultant Services > Project Advertisements" or udot.utah.gov/index.php?m=c&tid=614. **The deadline for submitting the Statement is 11:00 a.m. on Monday, October 16, 2006.** The right is reserved by the Department to reject any and all Statements of Qualifications.

The Utah Department of Transportation encourages prime consultants to use DBE/WBE's as sub-consultants where practicable.

September 23, 2006

Utah Department of Transportation
John R. Njord
Executive Director

Introduction - See **Appendix C** which includes:

- Scope of Work (Objectives and Tasks)
- QC/QA Plan Requirements
- Department Furnished Items

Project Dates:
Consultants are required to meet the dates set for the oral interviews and negotiation meeting. Consultants are also advised to meet the information submittal dates outlined in the summary sheet. Failure to meet these dates will be considered non-responsive.

Required Key Personnel Qualifications:
The Consultant shall be responsible to ensure that all personnel proposed under this Request for Qualifications (RFQ) be qualified through training, experience, and appropriate certification for the tasks assigned and shall have a working knowledge of Department standard practices.

The Consultant is expected to complete the form, *Proposed Key Personnel to Be Used on UDOT Project* (attached as **Appendix B** to this RFQ). The Appendix B should state the certification and education levels of the individuals proposed for use on this contract including sub-consultants' personnel. **The completed form must be included in statements but will not count as one of the allowed pages.**

Required Availability of Key Personnel:
When Consultants list personnel on Appendix B *Proposed Key Personnel to Be Used on UDOT Project* Form, the Consultant is agreeing to make the personnel available to complete work on the contract at whatever level the project requires.

Required Percentage of Work for Prime Consultant:
The Consultant must perform work valued at not less than **50%** of the total work, excluding specialized services, with its own staff. Specialized services are those services or items that are not usually furnished by a consultant performing the particular type of service contained in this RFQ.

Required Completion and Acceptance Criteria:
Progress payments will be made with a five-percent retainage of the invoiced amount for work in progress. Final payment, including any retainage, shall be made after all of the work has been completed and the final estimate, project records, and documentation have been received and accepted by the Utah Department of Transportation as accurate and complete. Penalties may be assessed for failure to perform in a satisfactory manner.

Applicable Federal and State Regulations:
The Consultant shall conform to all applicable state and federal regulations.

Debarment Certification:
Federal regulations require certification by prospective participants (including contractors, subcontractors, and principals) as to current history regarding debarment, eligibility, indictments, convictions, or civil judgments. The selected Consultant will be required to certify in accordance with contract Standard Terms and Conditions.

Authorization to Begin Work:
Notice to proceed will be given by Consultant Services as soon as the contract is approved and signed by all parties and returned to Consultant Services.

Required Statement Contents:
The Statement from the Consultant should contain the information identified in the attached *Utah Department of Transportation Guidelines for Preparing Standard Statement of Qualifications*.

Statement Evaluation Procedures:
The Statement shall be evaluated by a Department Selection Team in accordance with the criteria described in the *Utah Department of Transportation Guidelines for Preparing Standard Statement of Qualifications*.

Conditions of Proposal:
All costs related to the preparation of the Statement and any related activities such as interviews are the sole responsibility of the Consultant. The Department assumes no liability for any costs incurred by Consultants throughout the entire selection process.

Disposition of Statements:
Statements become the property of the Utah Department of Transportation, are treated as privileged documents, and are disposed of according to Department policies, including the right to reject all statements. The statement of the successful Consultant shall be open to public inspection for a period of one year after award of the contract. Statements of Consultants who are not awarded contracts shall not be open to public inspection and will be destroyed once the contract is executed with another consultant.

If the Consultant selected for award has required in writing the nondisclosure of trade secrets and other proprietary data so identified, the Consultant Services Manager shall examine the request in the statement to determine its validity prior to award of the contract. If the parties do not agree as to the disclosure of data in the contract, the Consultant Services Manager shall inform the Consultant in writing what portion of the statement will be disclosed and that, unless the Consultant withdraws the statement, it will be disclosed. If the Consultant withdraws their Statement, the Consultant will not be awarded the contract.

Ownership of Documents: All tracings, plans, manuscripts, specifications, data, maps, etc. prepared or obtained by the Consultant as a result of working on this contract, shall be delivered to and become the property of the Department.

Financial Screening:
The Department requires Consultants be Financially Screened prior to performing work for UDOT. **If a Consultant is selected and has not been financially screened and approved within two weeks after selection, the Consultant will be disqualified unless the delay is due to problems or delays by UDOT.**

The time it takes a Consultant to complete the Financial Screening process varies and therefore the Department encourages Consultants to submit their *Financial Screening Application* at the same time as their Statement of Qualifications or before.

Consultants may obtain the *Financial Screening Application* from the UDOT Web site udot.utah.gov under "Inside UDOT > Internal Groups and Divisions > Project Development > Consultant Services > Forms" or udot.utah.gov/index.php?m=c&tid=287. For questions, contact the Consultant Services Accountant at 801-965-4138. A Consultant's Financial Screening status is effective for the period of one year from the time the Consultant is approved.

Preaward Audit:
In the event that a proposing consultant has failed to pay UDOT monies due to the Department for over payment on past projects, UDOT has the right to reject and/or disqualify the firm's statement of qualifications. Disqualification will be based on the audit findings, determinations, and recommendations made by the Department's authorized agent.

Insurance Certificates:
The Consultant is required to provide the Department with Certificates of Insurance referencing the project naming the Utah Department of Transportation and the State of Utah as additional insureds.

Subscription to the UDOT Consultant Services Update Service:
The Department recommends Consultants interested in proposing a Statement of Qualifications subscribe to the UDOT Consultant Services Update Service on the UDOT Web site udot.utah.gov under "Doing Business > E-Mailing Lists" or udot.utah.gov/index.php?m=c&tid=548&type=1&item=2048&d=full.

If there are any changes affecting the Request for Qualifications, notice will be sent out via an email through the update service.

Consultant and/or Corporate Logos or Branding
Consultant and/or corporate logos or branding identification may no longer be displayed in **public** documents or products produced for UDOT beginning July 1, 2005. It is UDOT's intent that consultants should place identifying information, in text format, in appropriate places in documents. This requirement does not apply to Statements of Qualifications. For specific questions or further guidance, please contact Gaye Hettrick, Consultant Services Manager, 801-965-4639 or ghettrick@utah.gov.

Consultants and/or corporations are specifically restricted from placing logos or branding on the following items:

- Plan Sheets or Title Blocks;
- Environmental Documents;
- Standard UDOT Forms;
- Project Websites;
- Cover Pages;
- Headers/Footers; and,
- Information and Display Boards for Public Meetings.

Appendix A

Guidelines for Preparing a Standard Statement of Qualifications

INTRODUCTION

These guidelines were developed to standardize the preparation of a Standard Statement of Qualifications (SOQ) by Consultants for engineering services on a project. Submitting an SOQ is the beginning of the selection process and is used as the basis for selecting or for short-listing Consultants. If the Department determines interviews are necessary prior to selection, a minimum of two and a maximum of five Consultants will be short-listed and invited to an interview by the Department.

The purpose for these guidelines is to assure consistency in format and content in the SOQ prepared by Consultants and submitted to the Department. Preparing an SOQ instead of a detailed proposal reduces the time requirements for the Consultants and simplifies the review process for Department personnel.

SOQ SECTIONS

The Statement of Qualifications should contain the following sections in the order listed.

1. Introductory Letter
2. Project Team
3. Capability of the Consultant
4. Approach to the Project
5. Appendix B

SOQ EVALUATION CRITERIA

The SOQ evaluation criteria are listed below in red.

1. Introductory Letter - The introductory letter should be addressed to:

   Alan Loiacono
   RFQ Contract Administrator
   UDOT Consultant Services
   4501 South 2700 West
   Salt Lake City, UT 84119-5998

   In **one page**, express your interest in the project, state qualifications to do the work, and recount any summary information on the project team or yourself that may be useful or informative to the Department.

Include the mailing and e-mail addresses and phone number of the primary contact person for this consultant selection process in the introductory letter.

No evaluation points are assigned to this section and the introductory letter will not count as one of the allowed pages.

2. Project Team - The Selection Team will consider how well the qualifications and experience of the members of the project team relate to the specific project. The following information should be provided.

- Project team flow charts including sub-consultants (see sample *Project Organization Chart* available on the UDOT Web site udot.utah.gov under "Inside UDOT > Internal Groups and Divisions > Project Development > Consultant Services > Forms" or udot.utah.gov/index.php?m=c&tid=287 under *Project Organization Chart and Related Experience Charts*.)

- Describe the qualifications, experience, and availability of key personnel on your proposed project team. (NOTE: Do not include percentages of availability as this may be misinterpreted.)

- Provide a spreadsheet list of projects you have **completed** during the last five years. The heading of the spreadsheet should include the following (see sample *Related Experience* spreadsheet form available on the UDOT Web site udot.utah.gov under "Inside UDOT > Internal Groups and Divisions > Project Development > Consultant Services > Forms" or udot.utah.gov/index.php?m=c&tid=287 under *Project Organization Chart and Related Experience Charts*. Note: Columns may be combined in order to meet the font size and margin requirements.)

    - Name of Project Manager
    - Year
    - Type of Project
    - Project Name
    - Project Location
    - Project Description
    - Construction Estimate Cost - $Million
    - Services Performed
    - Client
    - Reference Contact and Telephone Number

A maximum of 30 points is available for this section.

3. Capability of the Consultant - The Selection Team will evaluate the Consultant's capability to perform the work.

- Describe your firm's capability to perform the work.

- Describe any unique qualifications your firm has to perform this type of work.

- Describe your firm's internal quality and cost control procedures.

A maximum of 30 points is available for this section.

4. Approach to the Project - The Selection Team will evaluate how well you have planned a basic course of action, what alternatives and/or preliminary approaches are proposed, and what provisions are identified for dealing with potential impacts, impediments, or conflicts. Explain the following:

- Describe the course of action proposed to meet the goals and objectives of the project. Be realistic, clear, and concise.

- Identify key project milestones.

- Identify potential impacts, impediments, conflicts, or potential mitigation.

A maximum of 40 points is available for this section.

5. Appendix B - The Consultant is expected to complete the form, *Proposed Key Personnel to Be Used on UDOT Project* (attached as **Appendix B** to this RFQ). The Appendix B should state the certification and education levels of the individuals proposed for use on this contract including sub-consultants' personnel. **The completed form must be included in SOQ but will not count as one of the allowed pages.**

When Consultants list personnel on Appendix B *Proposed Key Personnel to Be Used on UDOT Project* Form, the Consultant is agreeing to make the personnel available to complete work on the contract at whatever level the project requires.

SOQ FORMAT REQUIREMENTS

It is very important that submittals be clear, concise, and in the recommended format so they may be evaluated in an objective manner by the Department's Selection Team.

1. **Eight (8) SOQ Hard Copies** – (Number sequentially from one to eight on the upper right hand corner of the cover.)
2. **Electronic PDF File of SOQ on a CD** – (Labeled with the Consultant Name, Project Number, Project Location, PIN Number, and Submittal Due Date.)
3. **Color is allowed**
4. **8½" x 11" or 11" x 17" Page Sizes** – (Refer to No. 12 of SOQ Format Requirements for further details.)
5. **One (1") Margins** – (Exceptions: Consultant Name/Logo and Page Headers/Footers may be within margin)

6. **10 Pt Font and 12 Pt Line Spacing, Minimums** – (The minimum font size is 10 point font or greater everywhere in SOQ including graphics, unless the graphics are a duplication from another source and the source is referenced. The minimum line spacing is 12 point.)
7. **Related Experience Chart and Project Organization Chart are required** – (The sample charts, *Project Organization Chart* and *Related Experience Charts* are available on the UDOT Web site udot.utah.gov under "Inside UDOT > Internal Groups and Divisions > Project Development > Consultant Services > Forms" or udot.utah.gov/index.php?m=c&tid=287.)
8. **Bind SOQ on 11" Left Side**
9. **Tab the SOQ Sections for easy reference of Selection Team members** – (Sections are the Introductory Letter, each of the evaluation criteria, and Appendix B. If you limit information on tabs to Section Identification, Project Number, Project Location/Description, Consultant Name/Logo, and/or un-enhanced photographs, then the tab pages will not count towards the page maximum.)
10. **Front and Back Cover Pages are allowed** – (Information on the front cover page is not restricted. Cover pages will not count towards the page maximum.)
11. **Appendix B is required** – (Appendix B will not count towards the page maximum.)

A maximum total of 100 points is available for the Standard Statement of Qualifications. **A one-point penalty will be assessed by Consultant Services for each applicable violation of the above (#1 through #11) format requirements for a maximum 11-point penalty per SOQ.**

12. **10-Page Maximum** – (The Statement of Qualifications has a maximum page limit of **ten** pages.)

    A page is defined as a single-sided 8.5" x 11" or 11" x 17" sheet that contains text, pictures, tables, graphs, charts, plan sheets, or any other graphics. **There is a limit of up to three 11" x 17" sheets.**

    The Introductory Letter, Tab Pages, Appendix B, and Cover Pages will not count towards the page maximum.

    Any SOQ that exceeds the 10-page maximum will receive a three-point penalty per page over the limit.

UDOT SELECTION TEAM

The Selection Team members will receive copies of each SOQ submitted. They will review and score the SOQ's individually based on the evaluation criteria and submit their scores and comments to the Project Administrator. The Administrator will tally and compile the scores and comments. The Selection Team will then meet to discuss the scores and comments and determine whether interviews are necessary or whether the selection may be made based on the scores from the SOQ's.

If the Selection Team determines interviews are necessary, the members will develop the format of the interviews in the Selection Team Meeting by completing the *Interview Format Worksheet*.

SELECTION INTERVIEWS

If the Department Selection Team determines interviews are necessary, the following project-specific topics may be some of the issues discussed.

- Understanding of the Work
- Approach to the Project
- Schedule Control
- Management of Project

"SELECTING BY CONSENT" PROCESS

The final selection process will be performed using the "Selecting by Consent" (SBC) process developed by the Consultant Selection Interview Process Quality Improvement Team officially implemented August 12, 2004.

The SBC process is a scoring process that aids the Selection Team in developing the final ranking of consultants through a collaborative process. In this process each segment and question of the interview is weighted in advance during the Selection Team Meeting. After the interviews are conducted, the Selection Team scores each segment and question by consent. Consent is defined as the willingness of all Selection Team members to accept a decision reached by a collaborative process. The final selection ranking of consultants is based on the final scores developed by the Selection Team using the *Interview Scores* spreadsheet.

For more information regarding this process and copies of the *Interview Format Worksheet* and *Interview Scores* forms, see the UDOT Web site udot.utah.gov under "Inside UDOT > Internal Groups and Divisions > Project Development > Consultant Services > Forms" or udot.utah.gov/index.php?m=c&tid=287.

SUMMARY

The Standard Statement of Qualifications (SOQ) should be clear, concise, and it should provide the Department's Selection Team Members with an understanding of the Consultant's and Sub-consultants' ability to undertake and complete the proposed project in a thorough and timely manner.

Rev. 1/12/04

Appendix B

Proposed Key Personnel to Be Used On UDOT Project

Name*	Firm Name	Title (Within firm and/or proposed on project)	Certification Category/Level	Utah License/ Certification No.	Other State License/ Certification No.	Education Level

* Include all key personnel who are proposed to work on UDOT project including sub-consultants. Add additional pages if needed.

The Form and an example of the completed form along with further descriptions of the column headings are available on the UDOT Website udot.utah.gov under "Inside UDOT > Internal Groups and Divisions > Project Development > Consultant Services > Forms" or udot.utah.gov/index.php?m=c&tid=287.

Appendix C

A. SCOPE OF WORK

Project Description

The 200 East corridor in Cache Valley has been proposed as a primary alternative route to Highway 91 from Millville on the south to Smithfield on the north in the Cache Valley Corridor Study. Currently in Logan, the 200 East corridor has several limitations that will prohibit traffic flow. The 200 East project has been developed to eliminate these bottlenecks and improve 200 East from 300 South to 1400 North. These improvements will include connecting 200 East at Center Street, widening the road section from 200 South to 300 South, coordinating traffic signals along 200 East with Main Street, and other smaller improvements.

Conduct Preliminary Environmental Review

Overview
Determine the level of environmental impacts based upon project parameters.

Description

- Identify potential environmental resources, which may affect project. The study corridor should be large enough to accommodate minor design changes, reasonable design alternatives, drainage, detours, federal- or state-assisted utility relocations, potential equipment staging areas and material borrow or waste sites.
- Begin coordinating with appropriate resource agencies as soon as practicable.

Product
Preliminary Environmental Review, which includes:

- Potential Resource Identification and Mitigation
- Potential Environmental cost (time and money)

Activity Checklist
Tasks:

1. Identify in writing any anticipated environmental factors, which may affect design and provide a cost estimate and estimated time for mitigation. Base environmental factors and cost estimates primarily on existing information.
2. Determine the type and scale of initial environmental reviews which may be necessary in the following areas:
    a. Cultural and Palaeontological Resources
    b. Rare, Threatened or Endangered Species
    c. Noise
    d. Water Pollution, Wetlands, Floodplains, Stream Encroachments
    e. Hazardous Waste
    f. Prime, Unique, Statewide, or Local Important Farmland
    g. Air Quality
    h. Relocations
    i. Land Use/Urban Policy
    j. Section 4(f) or Section 6(f) Properties
    k. Wild/Scenic Rivers
    l. Visual, Socioeconomic, Natural Resources, Construction, Geology/Soils, Ecology, and other environmental features unique to the project

m. Community Impacts
n. Indirect and cumulative impacts
o. Invasive Species
p. Historical
q. Archeological
r. Obtain purpose and need information from the Project Sponsor
s. Identify access roads, borrow sites, and other project impacts if practical.

Input:

- Project Parameters: Project description and area map
- Permission to Enter

Potential Contacts

Entity	Information Requested
Federal Agencies such as: US Fish and Wildlife Natural Resources Conservation Service Army Corps of Engineers Bureau of Land Management US Forest Service National Park Service Federal Highway Administration Environmental Protection Agency	Resource Identification Permission to Enter
State Agencies such as: Division of Parks and Recreation Division of State Historical Preservation Division of State Lands and Forestry Department of Environmental Quality Division of Water Rights Division of Water Resources Division of Water Quality Division of Wildlife Resources Others	Resource Identification Permission to Enter
Potential Stakeholders Local Officials Environmental groups Local Businesses Chamber of Commerce Members of the General Public Others	Alternative concepts and ideas Community support/ownership
Private Property Owners	Permission to Enter
Indian Nations	Permission to Enter

Identify Land Ownership

Overview
Identify the affected landowners along the highway alignment

Description
- Prepare preliminary information on how the highway improvement affects landowners, possible relocations, mining claims, buildings, highways to be abandoned or frontage roads to be removed from state system and placed in local jurisdiction, etc.
- Obtain County Ownership Plat Maps, USGS Quad Maps, and/or aerial mapping.
- Show a general overview of the affected landowners.

Product
An exhibit map and written information showing the identified landowners and other right-of-way features affected by a new highway facility or improvement.

Activity Checklist
Tasks:

1. Review existing project plans
2. Review concept
3. Obtain County Ownership Plat Maps
4. Obtain USGS Quad Maps
5. Research old project files
6. Identify number of affected landowners
7. Identify potential utility right-of-way conflicts
8. If possible, identify potential highways or frontage roads to be placed in local jurisdiction
9. Evaluate condemnations
10. Possible hazardous materials involvement

Input:
- Project Location Map with Termini
- Existing project plans
- County Ownership Plat Maps
- USGS Quad Maps
- Mining Claims
- Existing utility maps showing gas, sewer, water lines (Permits Officer)
- Railroad maps and canal data

Potential Contacts
- County Recorder
- B. L. M. officials, Federal Building
- Utility Companies
- Railroad Companies

Inventory Roadway Conditions

Overview
Inventory existing conditions of the roadway segment.

Description
The inventory includes, but is not limited to:

- Utilities
- Capacity and congestion problems
- Geometric inventory (noting any that are part of the 12 critical geometric design elements)
- Condition of existing safety hardware
- Signing inventory
- Substandard signing
- Signal requirements
- Identification and location of detector loops for permanent station counters.
- Identification and location of detector loops for Traffic Signals.
- Bicycle and pedestrian facilities
- Request Draft Operational Safety Report from UDOT Traffic and Safety

Include in the inventory condition of existing structures, boxes and culverts. For major structures, boxes and culverts (width is twenty feet or greater) obtain the inventory report from the UDOT Structures Division (Structures Recommendation Report if available). Consult Logan Maintenance personnel to determine roadway drainage conditions and capacity adequacy.

Product
An Existing Conditions Inventory Report of the roadway segment.

Activity Checklist
Tasks:

1. Review existing roadway plans
2. Review traffic data and conflicts
3. Review possible utility conflicts
4. Review Maintenance records for historical costs and trends
5. Identify R/W limitations
6. Evaluate Design Standards
7. Identify maintenance concerns
8. Identify community concerns
9. Evaluate access management and potential conflicts
10. Assess needs for Intelligence Transportation System (ITS)
11. Identify other safety concerns

Input:

- Existing Roadway Plans:
- Horizontal Alignment
- Vertical Alignment
- Typical Sections
- Structures
- Hydraulics
- Signing
- Signals
- Lighting
- Pavement
- Average daily traffic, design hourly volumes, percent trucks, and major intersection/interchange turning movements for current and 20-year projections. Directional traffic volumes, if applicable.
- Utilities
- Existing Right of Way
- Maintenance Management System (MMS)
- Twelve Critical Geometric Design Elements
  (AASHTO Policy for Geometric Design Criteria)

- Design Speed
- Lane Widths
- Shoulder Widths
- Horizontal Alignment
- Vertical Alignment
- Grades
- Stopping - Sight Distance
- Cross Slope
- Super-elevation
- Structural Capacity
- Vertical Clearance
- Bridge Width
- Draft Operational Safety Report
- Talk to the Maintenance and Operations personnel about the project from their perspective.
- Design Flows for major drainage structures, if available.
- Structures Recommendation Report
- Other Design Items to be Considered:
- Weave Lanes
- Tapers
- Clear Zone
- Turning sight distance

Potential Contacts

- Federal Highway Administration
- Local Municipality
- City Public Works Director
- Engineer (City/County)
- Statewide Planning
- UDOT

Verify Pavement

Overview
Verify pavement condition prior to determining possible project concepts. Gather input data from various sources to verify the condition of the pavement or alignment.

Description

- Determine the condition of the existing pavement using Pavement Survey.
- Data may be supplemented by obtaining no more than two cores per mile.
- In exceptional cases, obtain soil samples, or take more than 2 cores per mile.

Product
Pavement Condition Report including preliminary pavement strategy and estimated preliminary pavement thickness.

Activity Checklist
Tasks:

1. Materials evaluation
2. Prepare preliminary testing strategy
3. Conduct inventory of the existing pavement or alignment
4. Determine possible Project Alternatives
5. Review preliminary testing

6. Estimate preliminary pavement thickness
7. Verify that the recommended pavement type is consistent with the corridor plan
   a. Prepare written Pavement Condition Report

Input:

- Project Location Map with Termini
- Pre-testing (Pavement Management Data) 1 core per kilometer
- Dynaflect or Falling Weight Deflectometer
- Rut measurements
- Ride index
- Cracking type and extent
- Skid index
- Traffic data
- Coring (as needed)

Prepare and Request Design Exceptions

Overview
Prepare Request for Design Exceptions and submit it for approval.

Description

- Submit the design exception request on the UDOT Standardized form with supporting documentation justifying retention of a substandard feature.
- All design elements, which do not meet UDOT and/or AASHTO design standards, require a design exception approved by UDOT Preconstruction Engineer.
- Include in the supporting documentation an evaluating the effects of the variance on the safety and operation of the facility. Consider four issues in the analysis:
  - To what degree is a standard being reduced?
  - Will the exception affect other standards?
  - Are features being introduced to mitigate the design deviation?
  - Are the design exceptions a result of implementing CSS and what are the trade offs?

Product
Design Exception Request

Potential Contacts

- UDOT

Develop Mapping and Topography

Overview
Obtain mapping and topography for the total length of the project

Description

- Determine the detail and accuracy of mapping, topography, and Section Corner Ties required for the project.
- Determine what is already available and what type of survey, aerial survey, or combination is needed to develop roadway plans.
- After the type of survey and the accuracy requirements have been determined, obtain the required surveys.
- Converts all mapping and topography to electronic data files and format to be compatible with UDOT's CADD System. Refer to UDOT CADD Workflow Document and Engineering Consultant

CADD Guidelines.
- Certify all contracted maps and topography as correct in accordance UDOT standards

Product
Topography map and survey data for the project in electronic data files.
Digital terrain model of existing ground.

Activity Checklist
Tasks:
1. Determine type of survey:
   a. Total Station\GPS Survey
   b. Conventional
   c. Aerial
      I. Electronic only
      II. Electronic plus photo
2. Choose control points with elevations
3. Surveyor certifies accuracy
4. Project Design Engineer checks information/data for accuracy
5. Field check for up-to-date completeness

Input:
- Old plans, if available
- U. S. Geological Survey Quad Sheet with Preliminary Alignment
- Basis for survey

Input Continued:

- Section Corners
- Existing Right-of-Way Markers
- USGS Monuments
- State Plane Coordinate System
- Local Survey Monuments
- Accuracy standards and scale
- Type of survey required
- Current UDOT Photogrammetry & Mapping Standard Guidelines.
- UDOT CADD Workflow Document.
- Engineering Consultant CADD Guidelines.

Potential Contacts
- UDOT

Agency	Information Requested
Federal Agencies Bureau of Land Management Forest Service National Park Service Bureau of Reclamation U. S. Geological Survey	Permission to Enter Survey markers
State Land Board	Permission to enter
Indian Nations	Permission to enter
Railroads	Permission to enter

Private Property Owners	Permission to enter

Conduct NEPA Scoping

Overview
Input is received from stakeholders regarding the proposed project. Stakeholders should be included in the NEPA scoping process.

Description
Utilize the Public Involvement Plan to determine the list of stakeholders that will be notified of the proposed project. Stakeholders include all agencies, groups, organizations, and the general public that could have an interest in the project.

- Stakeholders are invited to provide input on the proposed project in one or more meetings.
- Written comments are obtained from stakeholders regarding the proposed project.

Activity Checklist
Tasks:

1. Document all scoping activities and commitments made to stakeholders in the project file.

Input:

- Commitments made to stakeholders in concept phase.

Product
Documentation of all scoping activities and commitments made.

Define Project Team and Hold Project Kickoff Meeting

Overview
Define the project team and hold the project kickoff meeting.

Description
Select members to serve on the project team based upon the type and characteristics of the project. Determine what functional units will be involved in the design and construction of the project depending on the expertise required.

- Contact each functional manager to agree on team members and finalize required time commitments through a negotiation process.
- Hold a kickoff meeting with the members of the team to develop and approve the project charter, schedule, quality plan, communication plan, and public involvement plan.

Product
Project charter, quality plan, communication plan, public involvement plan, and acceptance of the scope, schedule and budget for the project.

Activity Checklist
Tasks:

1. Select staff resources.
    a. Determine technical needs of project
    b. Determine availability of staffing resources
    c. Select and agree on team member(s)
2. Identify stakeholders to be included in kickoff meeting.

3. Plan Kick-off meeting and notify team members and all identified stakeholders.
4. Prepare draft project charter.
5. Prepare draft quality plan and bring QC/QA plan to the kick-off meeting, and make any revisions or adjustments according to team members.
6. Prepare draft communication plan.
7. Prepare draft public involvement plan.
8. Prepare the budget and schedule
9. Hold the kick-off meeting.
10. Discuss the need for visual simulations. Some ideas that simulations can be used as a tool for are:
    a. community understanding, input and buy-in
    b. right of way purchasing
    c. traffic congestion
    d. mitigation
    e. construction traffic
11. Finalize and have everyone on the team approve the quality plan, communication plan, and public involvement plan.

Input:

- Budget from EPM
- Schedule from EPM
- Milestones from EPM
- Designer's Quality Control procedures
- Lessons Learned Data

Potential Contacts:

- FHWA
- UDOT
- Logan City

Value Engineering Analysis

Overview
Complete a value engineering analysis of the project.

Description
Value Engineering (VE) is the systematic application of recognized techniques which:

- Identify the function of a product or service.
- Establish a value for that function.
- Identify value engineering alternatives that provide the necessary function reliably at the lowest overall cost.
  In all instances, the required function is to be achieved at the lowest possible life-cycle cost consistent with requirements for performance, maintainability, safety, and aesthetics.
- Evaluate the project and determine if a VE analysis is of benefit to the project.
- Prior to the VE analysis select the VE team (five to eight people) based upon the disciplines involved in the subject project.
- The VE team conducts the VE analysis.

Product
Value Engineering Report

Activity Checklist
Tasks:

1. Identify Value Engineering team
2. Assemble all project information
3. Conduct Value Engineering Analysis
4. Prepare Value Engineering Report
5. Document an implementation plan and report results

Input:

- Plans
  - As-Constructed
  - Preliminary
    - Horizontal Alignment
    - Vertical Alignment
    - Typical Sections
- Right-of-Way
- Utilities
- Detailed Estimate
- Topography Sheets and Contour Maps (aerials)
- Design Study Report
- Environmental Classification (Draft Environmental Document)
- Pavement Design Data
- Structures information:
- As-Constructed Plans
- Sufficiency Ratings
- Drainage Data

Contacts

- UDOT
- FHWA
- Logan City

Additional References

- AASHTO Policy on Geometric Design of Highways and Streets
- UDOT Standard Drawings (Road, Traffic Control and Structures)
- UDOT Standard Specifications for Road and Bridge Construction
- UDOT Average Unit Cost and Numerical Bid Item List
- AASHTO Roadside Design Guide
- AASHTO Manual on User Benefit Analysis of Highway and Bus Transit Improvements
- Manual on Uniform Traffic Control Devices
- Value Engineering Manual of Instruction
- AASHTO Value Engineering Guidelines
- AASHTO Guide for the Development of Bicycle Facilities

Conduct Scoping Meeting and Develop Minutes

Overview

All stakeholders should be included in a scoping meeting. Identify all design features to be included in developing the project based on the type of project. Develop scoping meeting minutes and an Engineer's estimate showing estimated project costs.

- If the concept of the project changes significantly or the cost of the project exceeds the programmed cost by more than 20 percent, refer to the Local Governments Project Engineer for coordination with the Metropolitan Planning Organization.
- "Significant Concept Changes" include:

1. Inclusion of any design feature specifically excluded in the concept report.
2. Change from structural overlay to rehabilitation.
3. Increase in number of lanes as designated in the concept report.
4. Bridge rehabilitation to bridge replacement.
5. Change in project termini that would increase estimated cost by 20 percent.

UDOT Program Development Director/Local Governments Project Engineer reviews fund availability and makes recommendation to the Transportation Commission.

Description

- The Project Design Engineer prepares plans showing all existing roadway features so the project can be scoped.
- Each member of the scoping team receives copies of the concept report and the plans.
- With these two documents, the scoping team conducts an in-depth project scoping to determine items to be included in the project, and to determine an estimated cost.
- Request Operational Safety Report.
- Request that UDOT setup estimate in the PDBS system

Product
Scoping minutes stating findings and recommendations
Estimated Project Cost

Activity Checklist
Tasks:

1. Prepare Scoping meeting minutes and PDBS Engineer's estimate.
2. For projects having significant change in concept or cost increase exceeding 20 percent of programmed amount contact UDOT Project Manager.
3. Approve Scoping meeting minutes reviewed by Project Team
4. Document commitments made to stakeholders in Project File
5. Finalize and have everyone on the team sign the Project Charter

Input:

- Commitments previously made to stakeholders.
- Roadway Plans
  - Topographic Features
  - Centerline
    - Auxiliary Road
      - Center Line Ties
      - Topographic Features

Potential Units to Be Involved in Scoping Team

- Logan City
- UDOT

Develop Initial Alignment and Stake Control Line

Overview
Develop initial horizontal and vertical alignment. Once the highway alignment has been determined, transfer the horizontal alignment to the ground so additional features present but not noted in the preliminary design may be obtained from field reviews. Conduct a field review to verify complete evaluation of all relevant features and conditions.

Description

In accordance with AASHTO and UDOT standards, Project Design Engineer:

- Develops initial horizontal and vertical alignment for the project, including grade crossings, environmentally sensitive areas, and hydraulic requirements.
- Compute coordinates for field staking.
- Once again, consider if visual simulations will be helpful or necessary for community input and buy-in.

  The centerline survey establishes points representing the designed control line by transferring the ground alignment information furnished by the plans. The relative accuracy of the centerline survey must be not less than Third Order, Class II (1:5,000). The centerline survey may be by radial surveying using a "total station" instrument. Points along the control line must be at maximum 30 meter increments and include PS, PC, PSC, PSS, PCS, and PT points. Check super-elevations and structure clearances.

Product
Digital Terrain Model
Alignments
A control line established on the ground from which additional information may be obtained to refine the design
Field notes from field review

Activity Checklist
Tasks:

1. Develop horizontal alignment
2. Develop vertical alignment
3. Compute coordinates of horizontal alignment
4. Establish control line on ground
5. Review alignments to verify that appropriate standards are met.
6. Engineer conducts field review.
7. Project Team discuss need for visual simulation.

Input:

- Mapping

Potential Contacts

- UDOT
- Logan City

Agencies	Information Requested
Federal agencies: Bureau of Land Management Forest Service National Park Service	Permission to enter
State Land Board	Permission to enter
Indian Nations	Permission to enter
Railroads	Permission to enter Railroad geometrics or data Right-Of-Way
Private Property Owners	Permission to enter

Obtain Preliminary Utility and Railroad Information

Overview
Notify utility and railroad companies located in the proposed project corridor of the intended project. Contact with utility and railroad companies will be coordinated with UDOT's Region Utility/Railroad Engineering Coordinator. Request that the utility and railroad companies provide updated plans of their facilities.

Description
- Provide preliminary plans to the utility and railroad companies.
- The utility and railroad companies provide their utility plans showing what utilities are within the project limits.

Product
Utility and Railroad Location Plans

Activity Checklist
Tasks:
1. Distribute a copy of project preliminary plans to all utility and railroad companies.
2. Request that utility and railroad companies provide plans showing what utilities are within project limits, and include a due date when information is required.
3. Collect all information from utility and railroad companies for the project area.
4. Coordinate all activities with UDOT's Region Utility and Railroad Coordinator

Develop Right-of-Way Plans

Overview
Develop Right-of-Way plans, maps, and documents.

Description
- Develop Right-of-Way Plans, Ownership Records, Office Copies and Summaries required for the acquisition of land and easements for a highway.
- Develop instruments for the transfer of existing highway or frontage road to local jurisdiction.
- Provides critical parcels to the UDOT Right-of-Way division early in the process.

Product
Right-of-Way plans
Ownership Records
Office Copies
Descriptions
Summaries for Review
Access Management Plan

Activity Checklist
Tasks:
1. Develop the right-of-way plans employing the base map with its topography and approved alignments.
2. Plot on the base map the adjusted and rotated section and monument lines and subdivisions to highway.
3. Perform "Stage One Review" of development of above tasks 1 and 2 by Region Right-of-Way Engineer.
4. Plat property descriptions, fitting them into the property matrix and rotating to highway. Determine

true conflicts and "As-Occupied" fence boundaries.

5. Develop a total tract map for controlled-access highways, showing entire outlines of properties and existing roads, streams, canals, railroads and other features affecting access to those properties.
6. Draft an Ownership Record and assign a number for each property affected by the highway, showing all recording references.
7. Plot highway slope lines on the plan sheets and design uniform right-of-way lines to the alignment and relative to the slope limits.
8. Perform "Stage Two Review" of development of tasks 4, 5, 6, and 7 by Region Right-of-Way Engineer.
9. Calculate the dimensions, area of takings and remainders of each parcel of taking now defined by the right-of-way lines intersecting the property lines. Add to the assigned ownership number, as determined by the type of take required, a designated number or alphabet letter.
10. Prepare Office Copies showing the parcel number, landowner, description, clauses, credits, etc, and post information on the Right-of-Way Summaries.
11. Using the macros from the computer, build the legal right-of-way instruments (deeds).
12. Prepare a copy of Right-of-Way Plans, Deeds, Agreements, and correspondence with property owners. Submit to UDOT.
13. Prepare Right-of-Way survey plat in accordance with Utah Code 17-23-17. Determine certification requirements.
14. Prepare Right-of-Way control drawings showing:
    a. Summary of all Right-of-Way Markers, including project coordinates for each Right-of-Way Marker for all P. I.'s, P.C.'s, P.T.'s, angle points, and other locations where Right-of-Way markers are to be set per Standard Drawing 724-1
    b. Ties to each adjacent Section Corner and local City or County Survey monument
    c. Include copies of the survey control drawings in the construction drawings, with copies to UDOT and Logan City
    d. Give thirty (30) days' notice to the local city and/or county surveyor advising them of any monuments within the right-of-way, which may be destroyed during construction.
15. Prepare in, coordination with UDOT, an estimate of R/W costs.
16. Right of Way estimate.
17. Prepare in, coordination with Logan City and UDOT, an Access Management Plan.
18. Submit Access Management Plan to Cache Access Management Plan(CAMP) Committee

Input:

- Design sheets with alignments, curve data, and topography
- Subdivision plats, BLM survey plats and notes, Area Reference Maps, City Survey Information, GLO plats, etc.
- Current County Ownership Plat Maps
- Title Search for current owner and secure deeds of record
- Designated type of facility for access management
- Existing right-of-way plans and documents
- Aerial maps, railroad maps
- Mitigation and hydraulic plans
- Structure activity
- Cut and fill slope lines
- Type of purchase (relocations, state grounds, R/W, etc.)
- Calculations, traverses, copies of alignments

Potential Contacts

- Federal agencies
- County surveyor
- County Recorder
- UDOT

- Railroad Companies
- Attorney General's Office
- Bureau of Indian Affairs
- Indian Nations
- Landowners
- Local Agencies

Additional References

- UDOT Standard Drawing Numbers 110, 815-1, 815-2, 815-3, etc.
- UDOT Policy and Procedure
- UDOT Right-of-Way Manual, Part 10
- UDOT Roadway Design Manual, Part 6
- Clark on Surveying and Boundaries by Grimes
- Evidence and Procedures for Boundary Location by Brown
- Black's Law Dictionary by West
- UDOT Standard Specifications
- UDOT Regulations for the Control and Protection of State Rights-of-Way
- Restoration of Lost or Obliterated Corners and Subdivision of Sections by U.S.
- Department of the Interior
- Mineral Survey Procedures Guide by U.S. Department of the Interior
- Field Engineering by Wiley
- Manuals relating to State Coordinate Systems
- Acquisition for Right-of-Way by AASHTO

Conduct Roadway Geotechnical Investigation

Overview

Conduct all drilling and soil sampling.

Description

Geotechnical Review team, and the drilling geologist hold a meeting to:

- Review the project
- Evaluate site conditions
- Establish a conceptual settlement or slope stability mitigation plan
- Establish a subsurface drilling and soil testing plan.
- Evaluate cut and fill slopes
- Establish a field reconnaissance plan

Conduct drilling and soil sampling necessary to provide design recommendations for mitigation of slope/soil stability problems and subsurface soil consolidation (settlement) problems caused by roadway embankment construction.

Prepare generalized soil boring logs and other charts and graphs as required.

Product

Soil Boring Logs

Activity Checklist

Tasks:

1. Obtain required approval from Resource Agencies
2. Conduct utility investigation (Blue Stake)
3. Conduct drilling

4. Prepare drill log
5. Obtain soil samples

Input:

- Preliminary Plans
  - Horizontal Alignment
  - Vertical Alignment
  - Concept Report
- Material Quantity Requirement Estimate
- Environmentally Sensitive Sites
- Geologic Maps
- Quad Sheet
- Design Process Manual Page 56
- Conduct Roadway Geotechnical Investigation Activity # 22D

Potential Contacts

Agency	Information Requested
Federal Agencies: Bureau of Land Management Forest Service National Park Service	Cultural Considerations Material Sites Recreational Areas Permission to Enter
Natural Resources Conservation Service	Soil Characteristics
State Land Board	Cultural Considerations Material Sites Recreational Areas Permission to Enter
Utah Division of Natural Resources	Old Mine Sites Drill Sites
Indian Nations	Cultural Considerations Material Sites Recreational Areas Permission to Enter
Utilities	Buried Utilities (Blue Stake)
Railroads	Permission to enter
Personal Property Owners	Permission to enter
Division of Wildlife Resources State Engineer's Office U. S. Army Corps of Engineers U. S. Bureau of Reclamation U. S. Fish and Wildlife Service	Permission to Access Potential Environmentally Sensitive Sites

Additional References

- Soils and Foundations Workshop Manual, 2nd Edition, FHWA 1993
- AASHTO: Standard Specifications for Transportation Materials and Methods of Sampling and Testing

- ASTM: Annual Book of ASTM Standards:
  - Volume 04.02 Concrete and Mineral Aggregates
  - Volume 04.08 Soil and Rock; Dimension Stone;
  - Geosynthetics

Conduct Roadway Geotechnical Testing

Overview
Conduct laboratory soil testing.

Description
- Conduct all laboratory soil testing as requested by the Geotechnical Design Engineer to provide design recommendations for mitigation of slope/soil stability problems and subsurface soil consolidation (settlement) problems caused by roadway embankment construction.
- Prepare a summary of test data and other charts and graphs as required.

Product
Soil Test Report

Activity Checklist
Tasks:
1. Conduct soil tests
2. Prepare test reports

Input:
- Soil Logs
- Samples

Additional Reference
- Soils and Foundations Workshop Manual, 2nd Edition, FHWA 1993
- AASHTO: Standard Specifications for Transportation Materials and Methods of Sampling and Testing
- ASTM: Annual Book of ASTM Standards:
  - Volume 04.02 Concrete and Mineral Aggregates
  - Volume 04.08 Soil and Rock; Dimension Stone; Geosynthetics

Conduct Roadway Geotechnical Design

Overview
Conduct field reconnaissance and make recommendations for cut and fill slope design. Conduct geotechnical analysis.

Description

- Conduct field reconnaissance, including geological mapping of slopes.
- Establish a drilling, sampling, and soil testing program.
- Conduct geotechnical analysis.
- Prepare geotechnical report, which includes design recommendations, generalized soil boring logs, a summary of test data, and other charts and graphs as required.

Products
Geotechnical Report

Soil Boring Logs

Activity Checklist
Tasks:

1. Review previous project materials designs
2. Submit soil testing program
3. Develop compaction factors
4. Identify cut and fill slope requirements
5. Prepare geotechnical report

Input:

- Drill Logs
- Lab Test Results

Additional References

- Soils and Foundations Workshop Manual, 2nd Edition, FHWA 1993
- AASHTO: Standard Specifications for Transportation Materials and Methods of Sampling and Testing
- ASTM: Annual Book of ASTM Standards:
  - Volume 04.02 Concrete and Mineral Aggregates
  - Volume 04.08 Soil and Rock; Dimension Stone; Geosynthetics

Prepare Draft Environmental Document

Overview
Prepare Draft Environmental Document. Guidance for the preparation of this document is obtained in the Environmental Process Manual. Commitments made to stakeholders to gain acceptance for the project from the Project scoping meeting, and the NEPA Scoping/Public Involvement/Agency Coordination Process should be included in this document.

Description

- Develop the purpose and need for action, discuss alternatives, describe the affected environment, identify the probable beneficial and adverse effects of alternatives, and describe proposed mitigating measures necessary to ensure the project is compatible with the natural and built environment.
- Utilize the public involvement plan.
- Input received from stakeholders is considered in developing the preferred alternative(s) (a context sensitive solution).

Product
Categorical Exclusion Level III -- submit for Final Environmental Document approval

Distribution
UDOT
FHWA
Others (As listed in T6640.8A)

Activity Checklist
Tasks:
Prepare the Draft Environmental Document in accordance with the Environmental Process Manual of Instruction

Input:

- FHWA Technical Advisories
- Council on Environmental Quality (CEQ) Regulations for Implementing NEPA. FHWA's Environmental Impact and Related Procedures, and other environmental statutes and orders as applicable
- Commitments made to stakeholders in Planning Phase (Project File).
- Concept Report
- Minutes of NEPA Scoping/PI/Agency Coordination Meetings
- Reports from "Conduct Preliminary Environmental Review," "Conduct Concept Meeting and Develop Report," and "Initiate NEPA Scoping/PI/Agency Coordination."

Potential Contacts

- UDOT

Agency	Information Requested
Federal Agencies such as: U.S. Fish and Wildlife Natural Resources Conservation Service Army Corps of Engineers Bureau of Land Management U.S. Forest Service National Park Service Federal Highway Administration Environmental Protection Agency Others	Clearance Coordination
State Agencies such as: State Parks Division of State History State Lands and Forestry Division of Environmental Quality Division of Water Rights Division of Water Resources Bureau of Water Quality Division of Wildlife Resources Others	Clearance Coordination
Local Government Entities	
Private Entities such as: Interest groups Property owners Others	Coordination

Bureau of Indian Affairs: Indian Nations	Clearance Coordination

Develop Pavement Design

Overview
Develop pavement design

Description
- Develop a testing strategy consistent with the project scope. Coordinate testing activities with Project Team to obtain required data.
- Conduct pavement scoping meeting(s) to develop pavement design strategy.
- Conduct centerline soil survey report.
- Develop feasible pavement design options.
- Conduct engineering and economic analysis for each option. Select the best pavement option.
- Submit the pavement design recommendation to the Project Team for concurrence.

Product
Approved Pavement Design

Distribution
- UDOT
- Logan City

Activity Checklist
Tasks:
1. Pavement scoping meeting
   a. Testing Strategy
   b. Proposed design life
   c. Additional testing required from testing strategy
   d. Potential material sources
2. Testing
   a. Core and trench for thickness and condition of existing pavement
   b. Extraction/gradation on cores
   c. Strength and stripping tests
   d. Trench for sub base and sub grade samples
   e. Concrete pavement evaluation
   f. Falling Weight Deflectometer testing
3. Centerline Soil Survey Report
   a. California Bearing Ratio
   b. Soil Classification-Plastic Limit
   c. Liquid Limit
   d. Plastic Index
4. Soluble Salts
   a. Resistivity
   b. pH
5. Identify and determine mode(s) of failure-existing pavement.
6. Identify potential material sources for the project. Work with Region Environmental Engineer, BLM, Dept. of Forestry and others to obtain clearance.
7. Develop pavement design options to be evaluated.
8. Develop engineering and economic analysis of options.
9. Select and design best option.

Input:

- Annual maintenance costs, type of repair
- Horizontal and vertical alignment
- Geotechnical study
- Scoping Meeting Report
- Equivalent Single Axle Load, (ESALs)

Prepare and Request Design Exceptions

Overview
Prepare request for Design Exceptions if required and submit it to UDOT for approval.

Description
All design elements that do not meet UDOT and/or AASHTO design standards require a design exception approved by UDOT Preconstruction Engineer

- Submit the Design Exception request on the UDOT Standardized form with supporting documentation after the Scoping Meeting has been held.
- Evaluate the effects of the variance on the safety and operation of the facility in the documentation to justify retention of a substandard feature. Consider the following three issues in the analysis:
  - To what degree is the standard being reduced?
  - Will the exception affect other standards?
  - Are there any features being introduced to mitigate the design deviation?

Product
Design Exception Request with supporting data

Distribution
UDOT Project Manager
Logan City

Activity Checklist
Tasks:

1. Complete Design Exception Request forms
2. UDOT reviews Design Exceptions
3. UDOT and FHWA review and approve Design Exceptions, where applicable.

Develop Initial Roadway Plans

Overview
Prepare initial alternative alignments using base plans and conduct initial field inspection. Assemble initial roadway plans for preferred alternative. The Project Design Engineer must incorporate all mitigation measures proposed in the environmental document into the roadway plans. The plans should incorporate the principles of Context Sensitive Solutions by addressing the transportation need, being an asset to the community, and being compatible with the natural and built environment.

Description

- Develop initial plans for all prudent and feasible alignment alternatives within the corridor. Include in the initial plans topography, horizontal and vertical alignment, typical sections, and detailed interchange and intersection designs.
- Distribute plans to Project Team for comment and visit the site as needed.

- As appropriate, develop initial signing, striping and traffic control plans for each alternative alignment including the required Major Items of Work and Traffic Control Plan.
- Specify pavement-marking type
- Prepare a Construction Phasing and a Maintenance of Traffic Plan placing great importance upon safety and convenience of the traveling public, and worker safety.
- Evaluate detours and impacts on areas within and outside the project limits. The Project Design Engineer includes in the package all specialty plans, hydraulic plans, utility and railroad plans, and Situation and Layout Sheets.
- Ensure plans comply with the commitments made to stakeholders.
- Create visual simulations if deemed necessary in earlier phases.
- For design changes seek acceptance from stakeholders that are sufficient to keep the project moving forward.

Product
All maps, drawings, visual simulations, etc. of all prudent and feasible alternatives for use in the public hearing process.
An initial roadway plan package without summary sheets.

Activity Checklist
Tasks:

1. Develop Initial Roadway Plans
    a. Lay out all feasible alignment alternates using base mapping
    b. Develop typical sections and details
    c. Develop Traffic Management Plan
    d. Develop Signing and Striping Plans
    e. Prepare Title Sheet, Standard Drawing Index Sheet, Plan Index Sheet
    f. Coordinate with Bicycle and Pedestrian use.

Input:

- Project Scoping Report
- Concept Plans
- Field survey topography data and/or aerial mapping
- Land use studies
- Pavement design
- Utility and/or railroad location maps
- Initial hydraulic and hydrologic information
- Geotechnical report
- Existing sign inventory
- Pavement Marking Type Determination
- Pedestrian use areas
- Value Engineering Analysis
- Minutes of Public Involvement meetings
- Draft Environmental Document
- American Disabilities Act
- Commitments made to stakeholders

Potential Contacts

- Federal Agencies
    - Federal Highway Administration
    - USDA--Forest Service
    - Bureau of Reclamation
    - Bureau of Land Management
    - National Park Service

  - U. S. Fish and Wildlife
  - U. S. Natural Resources Conservation Service
  - Bureau of Indian Affairs
  - Internal and external stakeholders
- State Agencies
  - State Land Board
  - State Parks and Recreation
  - Local Governments
  - Utah Travel Council
  - Law Enforcement
  - Local Emergency Services
  - UDOT
- Other
  - Indian Nations
  - Irrigation Companies
  - Property Owners

Develop Initial Hydraulic Plans

Overview
The plans should incorporate the principles of Context Sensitive Solutions by addressing the transportation need, being an asset to the community, and being compatible with the natural and built environment and commitments made to stakeholders are addressed.
Complete the preliminary hydraulic design for the project, which includes:

- Making a field review
- Preparing hydraulic computation
- Determining size and placement of hydraulic structures
- Addressing environmental mitigation issues relating to hydraulics

Description

- Prior to proceeding with the technical hydraulic design conduct a field review of the project site. During this review determine the scope of work, identify the hydraulic design considerations and agree upon concepts.
- Determine preliminary sizes, and show and label locations for all drainage structures (pipes, box culverts, bridges, etc.) on plan and profile sheets. Prepare hydraulic computations including values for total runoff, culvert/ditch capacity, hydraulic gradeline, backwater depth, scour analysis, and any other applicable items. For all major hydraulic structures, submit hydrologic and hydraulic computations to Region Hydraulics Engineer.
- Design and show on the plans temporary as well as permanent erosion control measures. Such measures may include detention and diversion structures, bank and channel stabilization, sediment control, energy dissipation devices, landscaping and seeding. Include it in the plans the Stormwater Pollution Prevention Plan.

Product
Hydrologic and hydraulic computations and plans
Stormwater Pollution Prevention Plan

Activity Checklist
Tasks:

1. Conduct Field Review
2. Hydrologic Design
   a. Determine method of analysis and design frequency
   b. Verify Design Concepts (QC Process)

3. Hydraulic Design of:
    a. Bridges
    b. Water Surface Profiles
    c. Bridge Opening Geometry
    d. Bridge Backwater Analysis
    e. Erosion Control Features and Details
    f. Scour Depth of Abutments and Piers
    g. Storm Water Pollution Plan Sheet
    h. Energy Dissipators
    i. Pipe Box Culverts
    j. Sizes, Design Flow Rates
    k. Water Surface Profiles
    l. Surface/Small Ditch Design
    m. Erosion Control Features and Details
    n. Storm Water Pollution Plan Sheet
    o. Energy Dissipators
4. Storm Drain
    a. Catch Basin/Cleanout Box Types and Locations
    b. Detention/Retention Ponds
    c. Mitigation for Point Source Discharge
    d. Storm Water Pollution Plan Sheet
    e. Energy Dissipators
5. Channel Changes
    a. Erosion Control Features and Details
    b. Storm Water Pollution Plan Sheet
    c. Storm Drain Hydraulic/Energy Grade Line
    d. Energy Dissipators

Input:

- Typical Section
- Horizontal Alignment
- Vertical Alignment
- Cross-Sections
- Soil pH and Resistivity
- Topography Sheets and Contour Maps.
- UDOT Manual of Instruction for Roadway Drainage
- Environmental Commitments
- Commitments made to stakeholders

Potential Contacts

- UDOT
- Federal Agencies
    - U. S. Army Corps of Engineers
    - Federal Highway Administration
    - U. S. Fish and Wildlife Service
    - U. S. Natural Resources Conservation Service
    - Federal Emergency Management Agency
    - U. S. Environmental Protection Agency
- State Agencies
    - Division of Water Quality
    - Division of Water Rights
    - Division of Wildlife Resources
    - Cities and Counties

Design Public Involvement

Overview
Revise the Public Involvement Plan to allow for public acceptance of changes in the project. Identify and address the concerns of stakeholders throughout the project. Design Public Involvement ensures that commitments made to stakeholders are incorporated into the design.

Description
- With the assistance of the Project Team, confirm the stakeholders are still valid. Identify any new stakeholders.
- Update the Public Involvement Plan to schedule Public Hearings, Scoping Meetings, and other public gatherings that provide a means for gaining stakeholder acceptance to changes in design.
- Document commitments made to stakeholders for future reference.
- Provide stakeholders with project updates.

Product
- Public Involvement Plan for Design phase.
- Seek the accepted level of acceptance from internal and external stakeholders sufficient to keep the project moving forward.
- Document commitments made to stakeholders.

Activity Checklist
Tasks:
1. Update Public Involvement Project File.
2. Update Public Involvement Plan.
3. Provide a method for two-way communications with stakeholders.
4. Activate Internet site for project information and updates.

Develop Initial Landscape Plans

Overview
Prepare the Initial Wetland Mitigation and Landscape Plans. Prepare irrigation design and plans.

Description
- Develop landscape plans in accordance with CSS commitments.
- The designer coordinates landscape design with the Project Team.
- Include in the landscape plans one or more of the following types of design:
  - **Initial Revegetation Plan** (Including Wetland Mitigation Plans)
    - The Revegetation Plan is the next level above Required Erosion Control. It is usually developed as mitigation to meet environmental requirements or other state or federal regulations. Components of the Revegetation Plan include but are not limited to: Temporary Erosion Control, Grading Plans, Irrigation Plans, and Planting Plans.
  - **Initial Landscape Plans**
    - Landscape Plans are usually required within an urban or city project. These projects are based on the same environmental and ecological principles as the preceding levels. Landscape plans can range from assisting in the mitigation of the visual impacts, to creating an aesthetic transition between the roadway and surrounding land use.

Product
Initial Landscape Plans

Activity Checklist
Tasks:

Comply with the current UDOT Landscape design guidelines.

Input:

- Elevation
- Areas of disturbance
  - Cut slopes areas
    - cut slopes areas > 1:3 < 1:2
    - cut slopes areas > 1:2 < 1:1.5
    - cut slopes areas > 1:1.5
  - Fill slopes
    - fill slopes > 1:3 < 1:2
    - fill slopes areas # 1:1.5
- Borrow sites
  - granular material
  - native topsoil
  - wetland topsoil
- Staging areas
- Access/haul roads
- Road obliteration
- Wetlands
  - acreage
  - type
  - area of mitigation required
- Special considerations
  - Environmental Commitments
- Concept plans
  - Horizontal Alignment
  - Vertical Alignment
  - Typical Sections
- Utility Plans
  - Revegetation Manual
  - Commitments made to stakeholders
  - Stakeholder acceptance obtained

Potential Contacts

- **Federal Agencies**
  - Army Corps of Engineers
  - Bureau of Land Management
  - National Park Service
  - Natural Resources Conservation Service
    - Plant Materials Centers
    - Region Offices
    - State Offices
  - Federal Highways Administration
  - Environmental Protection Agency
  - Forest Service
  - Department of the Interior
    - Geological Survey
  - U.S. Fish and Wildlife
- **State Agencies**
  - Department of Natural Resources
    - Division of State Lands and Forest
    - Division of Energy

    - Division of Water Resource
    - Division of Wildlife Resource
  - State Engineer's Office
  - State Department of Agriculture
    - Seed Lab
    - Environmental Quality
  - Department of Health
    - Division of Environmental Quality
  - Travel Council
  - Community and Economic Development
  - Utah Arts Council
  - Utah State Extension
  - Utah State Water Research Laboratory
  - UDOT
- **City Departments/Offices**
  - Public Works Departments
  - Planning and Zoning Departments
  - Urban/City Forester
- **Product Supplier**
  - Seed
  - Nurseries
  - Equipment
  - Irrigation
  - Erosion Control
  - Organic Amendments
  - Chemical/Herbicides

- **Professional Organizations / Miscellaneous**
  - Utah Association of Nurserymen
  - Utah Community Forest Council
  - Tree Utah

Develop Initial Signal and Lighting Plans

Overview
Design the initial layout of the traffic signal and/or street lighting in accordance with CSS commitments.

Description
- Develop a topographical plan of the intersection or section of highway. Show physical features, right-of-way, utilities and control ties.
- Determine the location, type of operation, and hardware required using simulation and capacity analysis techniques, and street lighting distribution analysis.
- For a traffic signal project, investigate the need for system interconnect. Prepare a drawing using the existing topographic sheet showing:
  - Desired traffic lane configuration, including channelization.
  - Pole location and mast arm length.
  - Number, location, and size of detection.
  - Power source location and requirements.
  - Type and location of signal heads.
  - Number and type of pedestrian signal heads and pedestrian push buttons.
  - All paint striping including lane markings, stop bars, crosswalks, islands, etc.
  - Pertinent notes.
  - Traffic signal controller type and location, including any hardware needed for system

interconnect.
  - Intersection street lighting, number, and location.
  - Junction box location.
- For a roadway lighting project, produce a set of drawings using the strip maps with existing topography showing:
  - Pole and luminaire type and location.
  - Junction box locations.
  - Power source location.
  - Pertinent notes.
  - Understructure lighting and details.
  - Substation details.

Product
Initial lighting plans
Initial signal and striping plans

Activity Checklist
Tasks:

1. Traffic Signal
   a. Design traffic lane configuration, including paint striping and channelization.
   b. Capacity Analysis -- determine phasing and signal coordination needs.
   c. Review configuration and phasing.
   d. Determine pole location and arm length.
   e. Determine number, location and size of detection.
   f. Determine location and requirements of power source.
   g. Determine type and location of signal head or luminaire.
   h. Determine need for and location of pedestrian signal head and push buttons. Pertinent notes.
   i. Determine traffic signal controller type and location.
   j. Determine system interconnect needs.
   k. Gain stakeholder and public acceptance.
2. Street Lighting
3. Conduct lighting distribution analysis to determine:
   a. Luminaire type
   b. Mounting height and offset
   c. Pole spacing and location
4. Prepare plan sheets showing:
   a. Pole and luminaire location
   b. Junction box locations
   c. Power source location
   d. Circuit groupings (pole identifying numbers)
   e. Pertinent notes
   - Gain stakeholder and public acceptance

Activity Checklist
Input:

- Base Map
  - Topography
  - Control Lines
  - Utilities
  - Right-of-Way
  - Signing and striping plan
- Volume
  - Intersection warrant study

  - Percent trucks
  - Peak hour factors
- UDOT Traffic Signal Design Guide
- Commitments made to stakeholders

Potential Contacts
- Logan City
- Other Local Entities and Utilities
- UDOT

Establish Preliminary Utility and Railroad Plans

Overview
Incorporate utility and railroad information on roadway plans.

Description
- After receiving the latest railroad and utility plans, work with Logan City to place the utility and railroad information on the roadway plans and field verify the horizontal location by observation.

Product
Up to date roadway design plans with accurate horizontal ties for utilities and railroad facilities.

Activity Checklist
Tasks:
1. Place all utility and railroad ties on the roadway plans.
2. Check horizontal locations of utilities in the field (observation only).
3. Submit Utility Plans to UDOT (If applicable to help execute utility agreements)

Additional Reference
- UDOT Mapping and Aerial Photogrammetry Guidelines.

Develop Utility and Railroad Plans

Overview
The Design Engineer updates the project plans obtained from engineering data, and makes any possible modifications on the design plans to avoid unnecessary conflicts.

Description
- Reviews the horizontal field survey, designating subsurface utilities, and utility location updates.
- Analyses and adjusts the project plans to avoid any unnecessary conflicts with the utilities and railroads.
- Shows vertical ties on the plans. (Possible vertical conflicts are potholed by subsurface excavating techniques to determine location and the vertical depth of the facility.)
- Verifies that all projects involving utility and railroad relocations within the right-of-way in environmentally sensitive areas, or outside the right-of-way, are noted in the final environmental document.

Product
Corrected project plans showing horizontal and vertical ties to utility and railroad facilities.

Distribution
Logan City
UDOT (If applicable to help execute utility agreements)

Activity Checklist
Tasks:

1. Obtain utility and railroad engineering data.
2. Review field survey data.
3. Modify and adjust plans to avoid unnecessary conflicts.
4. Determine remaining conflicts with utilities and pothole for vertical ties, if required.
5. Place vertical ties on Project Plans.
6. Verify that any environmentally sensitive areas are noted on the plans. Coordinate with the Region Environmental Engineer.
7. Prepare plans for distribution that include:
    a. Title Sheet
    b. Typical Sections
    c. Plan and Profile Sheets
    o Situation and Layout Sheets

Prepare and Submit 404 Discharge, and Stream Alteration Permits

Overview
Prepare and submit appropriate permit applications.

Description

- In accordance with the Environmental Document, prepare and submit the necessary plans to the Department of Water Quality to obtain a point source discharge permit, the 404 Permit Application and Stream Alteration permits Application to the appropriate agencies.
- The CONTRACTOR prepares and submits the UPDES Notice of Intent for storm water discharges from construction sites.
- Follow the Activity Checklist of requirements.

Product
Complete applications

Activity Checklist

- Prepare and submit permit applications to UDOT

Potential Contacts

- U.S. Army Corps of Engineers for 404 permits
- Utah Division of Water Rights for 404 permits and/or Stream Alteration permits
- U.S. Fish and Wildlife Service for 404 permits and/or Stream Alteration permits
- Utah Division of Wildlife Resources for 404 permits and/or Stream Alteration permits
- Utah Division of Water Quality for UPDES permits
- Environmental Division for 404 and UPDES permits
- UDOT Landscape Architect for 404 and UPDES permits

Prepare for and Hold Location Public Hearing

Overview
Determine if a Public Hearing is required. Decide whether the requirement can best be satisfied by holding a hearing or by offering the opportunity for a hearing.

Description

- The purpose of a Public Hearing and related Public Involvement Procedures is to provide for an open exchange of information and ideas between the public and transportation decision makers. Effective public involvement should result in an open exchange of technical information and ideas, collaborative input on alternatives, and mitigation options. Refer to Environmental Process Manual, A Public Involvement.
- Coordination with the UDOT to ensure uniformity of hearing format, content, and conduct.

Product
Transcript of the hearing proceedings
Comments on draft environmental document

Activity Checklist
Tasks:
1. Identify and inform public of date, time, and location of hearing a minimum of two weeks prior to the Public Hearing.
2. Prepare for and hold Public Hearing

Input:
- Draft Environmental Document
- Permission received from UDOT (for Federal-Aid projects) to circulate the environmental document and proceed to satisfy the public involvement requirements.

Prepare Final Environmental Document

Overview
Incorporate changes in the proposed action or mitigation measures that resulted from comments received on the draft environmental document during the public involvement, agency coordination, and public hearing process. Present any necessary findings, agreements, or determinations required for the proposed action. Include pertinent comments received and demonstrate that these comments were considered.

Description
The final environmental document identifies the alternative selected after taking public comment into account, and evaluates the proposed project in accordance with the most recent National Environmental Policy Act and other guidelines and standards. Document the level of acceptance received from all stakeholders and the commitments made to achieve the endorsements. Refer to the Environmental Process Manual as a guide.

Product
Categorical Exclusion (Class II Project) for which a public hearing has been held.

Distribution
UDOT
FHWA
Others (as listed in T6640.8A)

Activity Checklist
Tasks:
1. Prepare the final environmental document in accordance with the Environmental Process Manual of Instruction.

Input:
- Draft Environmental Document

- Public Hearing Transcripts

Potential Contacts

- Federal Agencies such as:
  - US Fish and Wildlife
  - Soil Conservation Service
  - Army Corps of Engineers
  - Bureau of Land Management
  - US Forest Service
  - National Park Service
  - Federal Highway Administration
  - EPA
  - Others
- State Agencies such as:
  - State Parks
  - Division of State History
  - State Lands and Forestry
  - Division of Environmental Quality
  - Division of Water Rights
  - Division of Water Resources
  - Bureau of Water Quality
  - Division of Wildlife Resources
  - UDOT
  - Others
- Local Government Entities
  - Logan City
  - CMPO
- Private entities such as:
  - Interest groups
  - Property owners
  - Others

Additional References

- Current FHWA Technical Advisories that address the environmental clearance process.
- Council on Environmental Quality (CEQ) Regulations for Implementing NEPA FHWA's Environmental Impact and Related Procedures, and other environmental statutes and orders, as applicable.

Conduct Utility and Railroad Field Review (Plan in Hand)

Overview
Schedule, conduct, and document a field review of project plans.

Description

- Hold a field review to verify that all information including all utility and railroad information is properly shown on the project plans.
- After the field review is held prepare a report of the review and the updates all project plans. Provides copies of the title sheet, plans, profiles, and typical section sheets of the project.

Product
Field Review Report
Utility Plans

Activity Checklist
Tasks:

1. Schedules field review with affected utility/railroad companies and The Project Team.
2. Receive comments during the field review.
3. After the field review, prepare and submit the report to the Project Team.
4. Make any necessary corrections to the plans.
5. Make full-size reproducible plans of the updated title, typical section, plan and profile sheets, and any structure sheets submit the project plans to the UDOT.

Obtain Final 404 and/or Stream Alteration and/or UPDES Permit

Overview
Track the 404 permit processing through the U. S. Army Corps of Engineers to verify that the 404 permit application is received and processed in a timely manner. Track the Stream Alteration or UDPES Permit through the appropriate agency.

Description

- Engineer tracks the Discharge Permit and/or 404 Permit process to verify that the permits are completed and received in a timely manner.

Product
Approved 404, UPDES Permit, and/or Stream Alteration Permit

Finalize Design Study Report

Overview
Complete the final Design Study Report (DSR).

Description

- Assemble the Scoping meeting minutes, minutes of Field Reviews, and approved Pavement Design.
- Review the Final Environmental Documentation** and Engineer's Estimate in reference to the Project Plan Sheets for completeness and accuracy.
- Submits one copy of the approved final Environmental Document (required) with the final Design Study Report.
- Provide documentation of commitments made to stakeholders.

** All commitments made during planning and environmental phases will be documented and distribution of all commitments will be made to the following.

Product
Final Design Study Report

Distribution
UDOT
Logan City
CMPO

Activity Checklist
Tasks:

1. Finalize Design Study Report
2. Include Field Review Notes

3. Include Operation Safety Report (UDOT)
4. Compare Pavement Design to typical sections
5. Review Project Plan Sheets
6. Ensure acceptance of stakeholders

Input:

- Scoping meeting minutes and Engineer's estimate.
- List of all commitments made in planning, the environmental phase, and community outreach.

Potential Contacts

- Logan City
- UDOT

Finalize Landscape Mitigation Plan

Overview
Design additional landscape mitigation to satisfy the requirements of the final environmental document, if required, and the commitments made to stakeholders.

Description

- Develop additional Landscape Mitigation Plans as required by the final environmental document. These plans may include additional Temporary Erosion Control, Grading Plans, Wetland Creation, Irrigation Plans, and Planting Plans.

Product
Final Mitigation Erosion Control Plan
Final Mitigation Revegetation Plan
Final Mitigation Landscape Plan
Final Mitigation Wetland Creation

Activity Checklist
Tasks:

1. Conduct Site Inventory
   a. Conduct Plant Transect(s)
2. Conduct Site Analysis
   o a. Determine
      i. Macro/Micro Climates
      ii. Annual Precipitation / Moisture Regime
      iii. Site Hydrology
      iv. Slope Aspects
      v. Soil Types
      vi. Plant Communities
      vii. Surrounding Land Use (Present /Future)
      viii. Biotic Cultural Resources
3. Review previous project design materials
4. Develop concepts
5. Determine level of landscape mitigation design
6. Identify appropriate type of landscape mitigation design
   a. Erosion Control
   b. Revegetation
   c. Landscape
   d. Select concept
   d. Select plant densities
   e. Select plant palette

f. Prepare appropriate design
o Prepare grading plan

7. Specialized grading plans
   a. Borrow pit restoration
   b. Slope rounding
   c. Contour grading
   d. Rock cut sculpturing
   e. Prepare planting plan
   f. Prepare irrigation plan
   g. Identify topsoil salvage areas within roadway prism
   h. Submit finalized landscape mitigation plan for incorporation
8. Soil analysis
   a. Soil type/characteristics
   b. pH
   c. Topsoil hydroscopic analysis
   d. EC-electrical conductivity
   e. SAR--sodium absorption rate
   f. Soil color
      i. Elevation
      ii. Hydraulic analysis
9. Depth to water table
   o a. summer
   b. fall
   c. spring
10. Irrigation supply - pressurized
    o a. water type
      i. culinary
      ii. irrigation
      iii. Reclaimed
      iv. P.S.I.
11. Supply line
    a. pressures
      i. peak
      ii. low
    b. approved hours for use
      i.. Special considerations
12. Final Environmental Document
    a. 404 Permit
    b. 4F
    c. Other mitigation
    d. Stream Alteration Permit
13. Utilities/easements/lighting
    a. Buried Utilities
      i. Gas
      ii. Water
      iii. Electricity
      iv. Telephone
      v. Cable T.V.
      vi. Sewer
    b. Above Ground/Overhead Utilities
      i. Electricity
      ii. Cable T.V.
      iii. Overhead Lighting
14. Obtain stakeholder acceptance of finalized plan.

Potential Contacts

- UDOT
- Federal Agencies
  - Army Corps of Engineers
  - Bureau of Land Management
  - National Park Service
  - Soil Conservation Service
    - Plant Materials Centers
    - Region Offices
    - State Offices
  - Federal Highways Administration
    - Division
    - Regional
    - Central
  - Environmental Protection Agency
  - Forest Service
  - Department of the Interior
    - Geological Survey
  - U.S. Fish and Wildlife
- State Agencies
  - Department of Natural Resources
    - Division of State Lands and Forest
    - Division of Energy
    - Division of Water Resource
    - Division of Wildlife Resource
  - State Engineer's Office
    - State Department of Agriculture
    - Seed Lab
  - Environmental Quality
  - Department of Health
    - Division of Environmental Quality
  - Travel Council
  - Community and Economic Development
  - Utah Arts Council
  - Utah State Extension
  - Utah State Water Research Laboratory
- City Departments/offices
    - Public Works Departments
    - Planning Departments
    - Urban/City Forester
- Product Supplier
  - Seed
  - Nurseries
  - Equipment
  - Irrigation
  - Erosion Control
  - Organic Amendments
  - Chemical/Herbicides
  - Professional Organizations/Miscellaneous
  - Utah Association of Nurserymen
  - Utah Community Forest Council
  - Tree Utah

Develop Final Structure Plans (Minor Structures)

Overview
Complete final design of structures.

Description
- Ensure design is in compliance with the principles of CSS.
- Compare the situation layout sheet (box culvert, other hydraulic structures) against the latest roadway plans, the hydraulic information, and the railroad and utility approvals.
- Design and detail structural components, structure widening, structure extension and/or structure rehabilitation.

Product
Plans, Specifications, and Engineer's Estimate

Activity Checklist
Tasks:

1. Review existing structure plans (if applicable)
2. Conduct site investigation
3. Determine the extent of removal of existing structure (for extension)
4. Design and detail the structure
5. Prepare plans
6. Develop special provisions
7. Prepare engineer's estimate in PDBS
8. Obtain endorsement from stakeholders for changes that alter commitments made to stakeholders

Input:
- Final Roadway Geometrics (Horizontal and vertical alignment and typical sections)
- Design Study Report
- Traffic Situation and Detour Plans
- Existing structure plans (for extension)
- Hydraulic Plan (Initial)

Potential Contacts
- Project Team
- Logan City
- UDOT
- FHWA
- Specialty Suppliers

Finalize Hydraulic Plans

Overview
Verify that the Final Hydraulic Plan for the project is complete. Review all hydraulic computations and verify the size, type and location of all hydraulic structures. Verify receipt of permits for "Channel Changes" and "Encroachments on Flood Plains".

Description
- Ensure Design is compatible with CSS principles.
- Evaluate comments from preliminary reviews and, if needed, incorporate into the final plans. The final hydraulic design conforms to standards set by state, local, and federal agencies and the

governing environmental document.

Product
Final hydraulic plans

Activity Checklist
Tasks:

1. Verify conformance with the Final Design Study Report and the Environmental Document.
2. Verify drainage sheets, summary sheets, details and mitigation plans.
3. Complete Hydraulic Data Summary Sheets and include in the plans.
4. Obtain endorsement from stakeholders for changes that alter commitments made to stakeholders.

Input:
- Initial Hydraulic Plans
- Final Mitigation Plans as required by 404 Permit
- Final Design Study Report and Environmental Document
- Soil investigation and testing results

Potential Contacts
- UDOT
- Logan City
- CMPO

Finalize Roadway Plans

Overview
Make final corrections based on previous review comments. Verify adherence to environmental commitments, agreements, and permits; prepare quantity summaries and special provisions. Notify UDOT by memorandum that all proposed mitigation measures have been included in the plans.

Description
- Ensure Design is compatible with CSS principles.
- Resolve previous review comments and makes or coordinates appropriate corrections to the roadway and specialty plans.
- Compute and finalize quantity summaries.
- Prepare Engineer's Estimate in PDBS.
- Prepare and verify Special Provisions, and include in the final package.
- Either incorporate into the plans or otherwise resolve all previous review comments.

Product
Final Roadway Plans, Special Provisions, and Engineer's Estimate

Activity Checklist
Tasks:

1. Finalize Roadway Design Sheets
   a. Finalize all work on roadway plan package including utilities
   b. Finalize design for all permit mitigation
2. Finalize Signing and Striping Plans
   a. Revise sheets according to comments from field review and traffic engineer’s review
   b. Review for compliance with MUTCD

3. Finalize Traffic Control Plans
    a. Set up phasing based on construction activities
        i. Time of advertising
        ii. Estimated completion (length of contract days)
            - Detours
            - Flagging
            - Road closure time
            - Nighttime work
4. Specifics for each phase and type of work
5. Prepare Engineer's Estimate in PDBS
6. Prepare special provisions
7. Check that all DSR items are covered and DSR is not violated
8. Compute contract time
9. Region Environmental Engineer reviews plans to verify commitments are included, and submits a memorandum to Chief Environmental Engineer clearing mitigation measures

Input:

- Roadway plans from Final Design Study Report
- Field Review reports from:
    - Hydraulics
    - Right-of-Way
    - Landscape
    - Traffic and safety
- Traffic Management Plan
- Final Environmental Document
- Special permits and conditions:
    - 404
    - Wastewater Discharge
    - Memorandum of Agreement
    - Archaeological
    - 4(f)
    - Stormwater Pollution Prevention Plan
    - State Historical Preservation Officer
    - Historic American Engineering Record
    - Stream Alteration
    - National Pollutant Discharge Elimination System
- Reports/comments/minutes from all field reviews
- Obtained endorsement from stakeholders for changes that alter commitments made to stakeholders

Potential Contacts

- Contacts should have already have been made, and should continue as needed

Finalize Landscape Plans

Overview

Finalize a complete set of Landscape Plans.

Description

- Ensure Design is compatible with CSS principles.
- Finalize landscape sheets.
- Develop engineer’s estimate, notes, and special provisions that may be required.

Product
Final set of Landscape Plans for PS&E review

Activity Checklist
Tasks:

1. Prepare Final Schedules
2. Check Schedules for accuracy
3. Prepare all necessary detail
   - Irrigation
   a. Planting
   b. Miscellaneous
4. Select Standard Specification and Pay items
5. Write Special Provisions
6. Create Cost Estimates
7. Check for agreement of detail with Standard Specifications and/or Special Provisions
8. Check Summaries and Cost Estimates for Accuracy

Input:

- Initial Roadway Plans
- Initial Landscape Plans
  - Grading Plans
  - Planting Plans
- Site Development Plans
  - Edge of pavements
  - Roadways
  - Walkways
  - Bike Paths
  - Utility Locations
  - Irrigation supply
    - Water Type
      - Culinary
      - Irrigation
      - Reclaimed
    - Supply Line
      - Size
      - Location
      - P.S.I.
        - Peak
        - Low
    - Approved Hours For Use
- Obtain endorsement from stakeholders for changes that alter commitments made to stakeholders

Potential Contacts
Contacts should have already have been made, and should continue as needed.

Finalize Signal and Lighting Plans

Overview
Finalize a complete set of traffic signal or street lighting plans.

Description

- Ensure Design is compatible with CSS principles.

- Finalize traffic signal or street lighting plan sheets.
- Develop detailed summary of items, circuit schedules, engineer's estimates, additional notes, and special provisions as required.
- Resolve all previous review comments.

Product
Final set of plans for PS&E review.

Activity Checklist
Tasks:

1. Design detailed circuit sheets showing location of conduit wiring. Design conduit and wire sizes and number
2. Prepare summary of item sheets
3. Prepare circuit schedule sheets
4. Prepare special provisions
5. Prepare engineer's estimates
6. Obtain endorsement from stakeholders for changes that alter commitments made to stakeholders

Input:

- Notes from reviews
- Initial Signal and Lighting Plans
- Initial Signing and Striping Plans

Potential Contacts
- UDOT
- Logan City
- Other Local agencies and utilities

Prepare Utility and Railroad Agreements

Overview
Send plans to the railroad and utility companies, receive companies' plans and estimates, and prepare the necessary agreements in coordination with UDOT

Description
- Order the required number of copies of the plans for the utility and railroad companies. Prepare letters of transmittal, giving instructions regarding relocation, betterment, reimbursement of funds, and requirements regarding State and Federal funds. The companies that qualify for federal- or state-funded relocation are authorized to proceed with preliminary design engineering to prepare plans and cost estimates to relocate and adjust their facilities.
- Receive the plans and cost estimates from the utility companies, and reviews the plans and cost estimates to verify that the work is necessary, and that relocations and/or adjustments do not create additional conflicts.
- In coordination with UDOT prepare necessary agreements with the utility and railroad companies for adjustments, and review for compatibility with the project.
- In the case of railroad conflicts where the change impacts the public prepare a "Notice of Intended Action" and publish the Notice in a public newspaper after receiving approval through UDOT.

Product
Utility and railroad agreements

Distribution
Agreements are distributed to the:
Utility companies
Railroad companies
UDOT

Activity Checklist
Tasks:

1. Receives and reviews the final Utility Project Plans.
2. Orders the required number of copies printed for the utility and railroad companies.
3. Prepares letters for transmitting plans to the utility and railroad companies, requesting they review the plans for conflicts. When necessary, authorizes them to prepare plans and estimates for any work required to eliminate conflict with the proposed project.
4. Receives and reviews utility and railroad plans and estimates for compatibility with the project.
5. Prepares utility and railroad agreements.
6. Sends agreements to UDOT for processing.

PS&E Public Involvement

Overview
PS&E Public Involvement ensures the commitments made to stakeholders are incorporated into the design and the required level of stakeholder endorsement is achieved. It also establishes procedures necessary to gain the required level of public endorsement, provides documentation on the commitments made to stakeholders, and ensures they are passed on through the construction phase.

Description

- Obtain the acceptance of stakeholders for the completed design at the appropriate level of commitment
- Conduct a review on CSS strategies and design expectations. Include the following:
- Document what was specifically done to minimize impacts to natural and built environments.
- Document what was specifically done to make the project an asset to the community.
- Document the commitments made to stakeholders and ensure they are passed on through the construction phase.
- Provide a means for the general public to stay informed on the progress of the project.

Product
Revised Public Involvement Plan for PS&E phase

Activity Checklist
Tasks:

1. Update Public Involvement Project File
2. Document commitments made to stakeholders
3. Update Public Involvement Plan
4. Create the section for the Public Involvement Project File to incorporate CSS principles and commitments into the construction and maintenance phases

Potential Contacts

- Logan City
- UDOT
- CMPO

Conduct Final Right-of-Way Review

Overview
Review the Right-of-Way plans and documents.

Description
- Obtain, review and certify the complete set of Right-of-Way plans, documents and summaries for completeness and conformity to standards and procedures.

Product
Complete and certified set of Right-of-Way plans and supporting documents

Distribution
UDOT

Activity Checklist
Tasks:
1. Review the plans, documents and summaries for completeness and conformity to standards and procedures, and to environmental document. Certify by signing title block.
2. Verify that the deeds of taking agree and conform to the method of ownership.
3. Verify that all clauses used in deeds and easements are applicable to the construction needs of the project guidelines.
4. Verify that all signatures are entered on the plans.
5. Verify that all features in the roadway plans that require right-of-way deeds and easements are included in right-of-way plans.

Input:
- Complete work copies of the Ownership Records, Deeds, Office Copies and Summaries.
- Complete set of Right-of-Way maps, stamped and certified by a Utah licensed land surveyor.
- Complete set of roadway plans.

Conformity Review of Right-of-Way Package

Overview
Complete transmittal package for Right-of-Way acquisition.

Description
- Conduct a conformity review of the Right-of-Way package and transmit it to the UDOT
- When requested, UDOT Right-of-Way Engineer reviews the package.

Product
Right-of-Way package ready to be transmitted to UDOT for appraisal and acquisition.

Distribution
UDOT

Activity Checklist
Tasks:

1. Verify that all project documentation and maps conform to UDOT standards and certify by signing title block.
2. Verify that the project has been approved by FHWA or by the state.

3. Print and fold five (5) reduced sets of the Right-of-Way maps for the package.
4. Prepare a transmittal letter describing the Right-of-Way Summary, the number of parcels and the maps. Prepare any letters documenting the action on the project. Send copies to UDOT.
5. Verify that the Record of Survey Plat has been filed with the County Surveyor and UDOT.

Input:

- Reviewed and approved copies of the Ownership Records, Summaries, and instruments
- Reviewed and approved Right-of-Way maps and summaries
- Reviewed documents prepared for transfer of highways and frontage roads to local governments

Contacts
UDOT
FHWA
Cache County
Logan City

Assemble PS&E Package

Overview
The Project Design Engineer assembles the PS&E package and completes Designers' checklist.

Description
The Project Design Engineer:

- Assembles the roadway plans, special provisions, engineer's estimate, PDBS Summary Report, and Measurement and Payment excluding standard drawings.
- Acquires additional needed special provisions and drawings, (e.g. structures).
- Prepare Red Flag Analysis and finalize Engineer's Estimate in PDBS

Product
Complete set of plans, special provisions, and estimate, excluding standard drawings.

Distribution List
Project Team
UDOT
Logan City
CMPO

Activity Checklist
Tasks:

1. Check the submitted package for completeness.
2. Incorporate all plans, details, special provisions, and
3. Check to see that all other requirements have been met.
4. Complete Designers' Checklist.
5. Prepare estimated construction contract time
6. Submit total PS&E package to Project Team

Input:

- Final plans, specials, and estimates.

Prepare For and Hold PS&E Review

Overview

- Schedule and conduct the PS&E review meeting.
- Follow the approval procedure outlined in Final Design Study Report Activity, Conduct a Design Study Report Review for projects having a significant concept change after approval of the Design Study Report and prior to advertising the project.

Description

- Review project package for clarity, and verify that all structure, signal and lighting drawings, all specifications, PDBS Summary Report, and Measurement and Payment are included.
- All PS&E team members receive plan packages and review them for clarity and completeness.
- Determine whether a pre-bid meeting should be held.

Product

A complete and thoroughly reviewed set of the plans, special provisions, and estimate.

Distribution

- Determines the proper distribution from the following list:
  - Federal Highway Administration (2) (when applicable)
  - UDOT
  - Others: Local entities, irrigation companies, etc.

Tasks:

1. Determine PS&E team with input from UDOT, Logan City and The CMPO.
2. Schedule the review meeting, coordinating with UDOT and the Project Team.
3. Write letters of notification to all parties involved.
4. Complete the PS&E package with supplementals and distributes it to all parties involved at least ten working days before the review meeting.
5. Conduct PS&E Review.
6. Prepare a report of the minutes of the Review, which will address each issue, and how it will be resolved. The report is distributed within one week of the meeting to those who attended the review.

Make PS&E Revisions/Additions

Overview

Make the necessary corrections, revisions, and changes to the plans, specifications, and Engineer's Estimate as noted in the PS&E Review.

Description

Based on input back from the PS&E review make changes and corrections to the Roadway Plans, Traffic Control Plans, PDBS Summary Report Sheets, Engineer's Estimate, Measurement and Payment, and Special Provisions, and prepares transit and grade books..

Product

PS&E Minutes and Resolution Report
Final Package
Final Plan Check List
Transit and Grade Books

Activity Checklist

Tasks:

1. Make revisions/additions
2. Compile final package
3. Complete Final Plans Check List

4. Prepare and submit Transit and Grade Books
5. Re-assess Construction Contract Time

Prepare Advertising Plan Set

Overview
Prepare project package for advertising.

Description
Deliver the project package (plans, special provisions, estimate, and Measurement and Payment) to the UDOT Project Manager. Review the package, with UDOT Region Project Manager and Local Government Support personnel for completeness and clarity, and verify that all clearances have been obtained.

- Review the Final Package with comments received from the Project Team, and incorporates them as corrections.
- Sign and Stamp the final package.
- Submits two signed and Stamped hard copies and a complete electronic copy to UDOT.

Product

- A project, complete and ready for advertisement through the UDOT advertising process.
- R-709
- T-725
- Federal-Aid Project Statistical Report
- Right-of-Way Certification
- Utility Certification

Activity Checklist
Tasks:

1. Review plans, specials, and Measurement and Payment for completeness, clarity, and comments.
2. Verify that the package conforms to PS & E minutes resolution report
3. Review for compliance with Final Plan Check List
4. Obtain approval of package from UDOT and have the plans signed.
5. Complete R-709, T-725, and Federal-aid Statistical Report
6. Complete Checklist for Advertising
7. Prepare Advertising Information Sheet
8. Burn a complete advertisement package on CD as per UDOT advertising process
9. Prepare two copies for the Project files. Include the following items:
   a. Environmental Document
   o Design Study Report
   b. Minutes of Meetings
   c. Correspondence with Government Agencies and Property Owners.
   o Any Design Exceptions that may have been processed after the Design Study Report was approved.
10. Upon advertisement of Project, submit to Logan City and UDOT.

Input:

- PS&E Minutes and Resolution report and review comments
- Designers' Checklist
- Utility Certificate
- Right-of-Way Certificate
- EEO Certification
- Final Package

- Contract Time
- FHWA - FMIS Reporting Manual
- Letter from UDOT Region Traffic Engineer clearing project for advertising
- Letter from Local Government clearing package for advertising
- Complete QC/QA checklists, signed

B. QC/QA Plan Requirements

- The Consultant will prepare, distribute, and implement the Quality Control/Quality Assurance Plan for the project. The Department has adopted new QC/QA standards and the consultant must meet or exceed these requirements. The Standard may be found on the UDOT Web site udot.utah.gov under "Doing Business > Consultant and Designer Resources > Quality Control/Quality Assurance" or udot.utah.gov/index.php/m=c/tid=650.
- Document Control: All documents will be maintained in both an electronic and hard copy form. Each document will have a uniquely specific location in both electronic and hard copy formats.

C. Department Furnished Items

- UDOT Standards, Policies, and Reference Materials (available online at the UDOT Web site udot.utah.gov under "Doing Business > Standards, Policies, and Reference Materials" or udot.utah.gov/index.php?m=c&tid=77)
- UDOT Environmental Process Manual of Instruction (available online at the UDOT Web site udot.utah.gov under "Inside UDOT > Internal Groups and Divisions > Project Development > Environmental > Environmental Process Manual of Instruction" or udot.utah.gov/index.php?m=c&tid=241&d=full&type=1&item=277)
- UDOT Consultant Services Manual of Instruction (available online at the UDOT Web site udot.utah.gov under "Inside UDOT > Internal Groups and Divisions > Project Development > Consultant Services > Manuals" or udot.utah.gov/index.php?m=c&tid=615)